

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Scheduled Maintenance: 0930 to 2000

Wednesday-December 01, 2004: MS-010, Blue Quench: File# = 1101912246

Permit ID: 2b-ps1 Timestamp: 09:44:04 +2317171

(Counter = Maintenance)

Technical Notes / Sequence of Events: **REPORT ON YELLOW RING STATUS:**

09:24, Ring is open for PS work. -Mei

Brought down the Blue Link by putting b2-q89 to Standby then to off. Placed all Service buildings to off for LOTO purposes as per Don Bruno. Continue work on the Yellow D6-D8 Yellow Sector 10 grounding problem. [Heppner](#)

QLI Recovery TAPE Start: 19:32:28 Link Recovered Time: 19:42:31 Estimated Down Time: 594 minutes

Quench Analysis: Recovering from Maintenance.

(Counter = No counts)

Thursday-December 02, 2004: MS-011, Blue Quench: File# = 1101968121

Permit ID: 4b-time.A Timestamp: 01:15:20 +1914370 Beam Permit Fail Timestamp: 01:15:00 +1914401

QPAControl / Timing Resolver: No QPA faults listed

Quench Detector(s) Trip: 4b-qd1, B4QFQ4_6VT Int. 1, Tq: -24

5 Minute: Quench Delay File: None listed, all systems running.

Beam Loss Monitors (Rads/Hr): No affects.

Main Magnet Power Status: Injection Currents

DX Heaters: None fired.

Technical Notes / Sequence of Events: Reference to MS-014

QLI Recovery TAPE Start: 01:21:34 Link Recovered Time: 01:44:54 Estimated Down Time: 30 minutes

Quench Analysis:

(Counter = IR)

Thursday-December 02, 2004: MS-012, Blue Quench: File# = 1101970227

Permit ID: 4b-time.A Timestamp: 01:50:24 +3930431 Beam Permit Fail Timestamp: 01:50:24 +3930462

QPAControl / Timing Resolver: No QPA faults listed

Quench Detector(s) Trip: 4b-qd1, B4QFQ4_6VT Int. 1, Tq: -24

5 Minute: Quench Delay File: None listed, all systems running.

Beam Loss Monitors (Rads/Hr): No affects.

Main Magnet Power Status: Injection Currents

DX Heaters: None fired.

Technical Notes / Sequence of Events: Reference to MS-014

QLI Recovery TAPE Start: 01:58:21 Link Recovered Time: 02:06:35 Estimated Down Time: 16 minutes

Quench Analysis:

(Counter = IR)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Thursday-December 02, 2004: MS-013, Blue Quench: File# = 1101971515

Permit ID: 4b-time.A Timestamp: 02:11:52 +3281682 Beam Permit Fail Timestamp: 02:11:52 +3281713
QPAControl / Timing Resolver: No QPA faults listed
Quench Detector(s) Trip: 4b-qd1, B4QFQ4_6VT Int. 1, Tq: -24
5 Minute: Quench Delay File: None listed, all systems running.
Beam Loss Monitors (Rads/Hr): No affects.
Main Magnet Power Status: Injection Currents
DX Heaters: None fired.

Technical Notes / Sequence of Events: Reference to MS-014

QLI Recovery TAPE Start: 02:30:02 Link Recovered Time: 02:37:42 Estimated Down Time: 26 minutes

Quench Analysis:

(Counter = IR)

Thursday-December 02, 2004: MS-014, Blue Quench: File# = 1101973844

Permit ID: 4b-time.A Timestamp: 02:50:44 +963948 Beam Permit Fail Timestamp: 02:50:44 +963979
QPAControl / Timing Resolver: No QPA faults listed
Quench Detector(s) Trip: 4b-qd1, B4QFQ4_6VT Int. 1, Tq: -24
5 Minute: Quench Delay File: None listed, all systems running.
Beam Loss Monitors (Rads/Hr): No affects.
Main Magnet Power Status: Injection Currents
DX Heaters: None fired.

Technical Notes / Sequence of Events:

MCR called Carl Schultheiss as they thought the Blue Main Power Supplies to be the cause as they tripped several times at around 445A. The confusion may have been the time stamp. (4b-time.A) Which indicates an IR problem. After analyzing that it was not the mains, Carl called Don Bruno who took over. A busy night as RF was down for repair; Don had CAS (Frank and George) replaced the 3U buffer card first because the Voltage signal appeared to be the source of the problem since the signals pass through this to the MADC channels. Not a fix, the next thing was to open the Dynapower power supply, which requires LOTO to the Blue Mains. The 3-channel isolation amplifier board was replaced, supply closed up, LOTO removed and the Link reestablished, the p.s. output voltage looks good now on psall.

Bi4-qf3-ps looked good at injection, MCR ramped to top energy, Don and I monitored the supply using Virtual Scope. Once at Store Energy, bi4-qf3-ps still looked good so Don handed the blue ring back over to MCR. -Heppner

QLI Recovery TAPE Start: 08:40:18 Link Recovered Time: 09:00:36 Estimated Down Time: 370 minutes

Note: Actual down time for this power supply started with MS-011, therefore = 485 minutes

Quench Analysis:

(Counter = IR)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Scheduled Maintenance: 1100 to 1400

Thursday-December 02, 2004: MS-015, Blue Quench: File# = 1102002733

Permit ID: 2b-ps1 Timestamp: 10:52:12 +1334195

(Counter = Maintenance)

Technical Notes / Sequence of Events: **REPORT ON YELLOW RING STATUS:**

Brought down the Blue Link by putting b2-q89 to Standby then to off. Placed Service building 1010A Yellow Supplies to off, LOTO applied to the Blue and Yellow Mains to prevent supplies from coming on as per George Ganetis. Continue work on the Yellow D6-D8 Yellow Sector 10 grounding problem. [Heppner](#)

QLI Recovery TAPE Start: First attempt **13:15:19**, halted due to a communications problem with bo11-tq6-ps, no faults listed on any of the tool pages, told MCR to try again, success at TAPE Start: **13:44:26**

Link Recovered Time: 13:52:12 Estimated Down Time: 172 minutes

Problem in Yellow Ring: 4b-time.B / Dec 02 at 20:56:52

Friday-December 03, 2004: MS-016, Blue Quench: File# = 1102102628

Permit ID: 2b-ps1 Timestamp: 14:37:08 +292793

(Counter = Other)

Technical Notes / Sequence of Events: **REPORT ON YELLOW RING STATUS:**

From the Night of December 2, 2004: We were able to bring yellow ring to top energy and do a shut off at high current. The dipole ground current was very small (same as approx. levels as last run) a new problem has now occurred. There are signs of a buss to buss short between y12q7 shunt bus and y12q9 shunt bus. This fault occurred during the shut off. This is a preliminary finding, and more analysis and testing will be required to determine what is happening. The yellow ring will not be available tonight. -[Ganetis](#) [[quench](#)]

MCR: It was decided at the evening meeting to shut down RHIC, and warm up. All the injectors are off as well.-[Sanjee](#)

NOTE: Science is on hold until further notice as Sector 11 and 12 need to be warmed up and magnets cut open in the Yellow Ring for repairs. There will be more information as experts proceed to investigate. Brought down the Blue Link by putting b2-q89 to Standby then to off. Continued by putting all other Service Buildings to Standby then off for LOTO applied to Yellow. [Heppner](#)

QLI Recovery TAPE Start: N/A, down until further notice.

Quench Analysis: Maintenance of the Yellow Ring requires Blue Ring to be warmed up.

(Counter = M)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

December 24, 2004

Blue Ring Restored: Return of Machine Setup

Yellow Ring Testing resumes

Thursday-December 23, 2004: MS-017, Blue Quench: File# = 1103854063

Permit ID: 8b-ps1 Timestamp: 21:07:40 +3083637 Beam Permit Fail Timestamp: 21:07:40 +3083667

QPAControl / Timing Resolver: No QPA faults listed, b-QD QLI, BI1 first in.

Quench Detector(s) Trip: 8b-qd1; Blue Quenched B7QFQ3_VT Int. 5, Tq: -24

5 Minute: Quench Delay File: 8b-qd1; B7QFQ3_VT

Beam Loss Monitors (Rads/Hr): Highest Levels seen at Triplet Region, Sector 7:

B7-lm3.1 = 4618.27, y7-lm2.1 = 6780.23, b7-lm2.1 = 9067.50

Main Magnet Power Status: Ramping towards LastStone, BMD = 3352 amps, BMQ = 3159 amps

DX Heaters: None fired.

Technical Notes / Sequence of Events:

22:19, Estimate of the quench recovery from Lee is about half hour. -Yun

21:26, Blue quench link trip was caused by 8b-qd1 quench detector. The quench detector tripped because of a real magnet quench at B7QFQ3_VT. The beam permit tripped after the quench link. There was a real magnet quench at b7q3. There was a high beam loss at g7-lm3.1 for over 4 sec. Are the BLM thresholds correct? There is now 3 beam induced quench for this run. -Ganetis [quench]

QLI Recovery TAPE Start: 23:31:14 Link Recovered Time: 23:40:23 Estimated Down Time: 153 minutes

Quench Analysis: Beam Induced Quench, #003
(Counter = BI)

Thursday-December 23, 2004: MS-018, Blue Quench: File# = 1103864088

Permit ID: 4b-time.A Timestamp: 23:54:48 +562587 Beam Permit Fail Timestamp: 23:54:48 +562617

QPAControl / Timing Resolver: No QPA faults listed, QP03-R4BBQF2-bo3-qf2-qp first listed.

Quench Detector(s) Trip: 4b-qd1, Blue Quenched B4DRDX_VT Int. 5, Tq: +158

Postmortem Plot: Current does not follow Iref, Iref drop -0.009 seconds before T=zero.

5 Minute: Quench Delay File: None Indicated.

Beam Loss Monitors (Rads/Hr): Beam Dump is clean, No Beam in the machine.

Main Magnet Power Status: Ramping towards Injection Current, BMD = 179 amps, BMQ = 171 amps

DX Heaters: None fired.

Technical Notes / Sequence of Events: bo3-qf2-ps, Stby-Error, AC Power, Standby, Remote, Error signal, Quench

QLI Recovery TAPE Start: 23:58:40 Link Recovered Time: 00:10:34 Estimated Down Time: 16 minutes

Quench Analysis: bo3-qf2-ps fault.
(Counter = IR)

RHIC Physics fy05 Run

Daily Quench Analysis for the month of December 2004

Friday-December 24, 2004: MS-019, Blue Quench: File# = 1103865256

Permit ID: 4b-time.A Timestamp: 00:14:16 +102960 Beam Permit Fail Timestamp: 00:14:16 +102990

QPAControl / Timing Resolver: No QPA faults listed, QP03-R4BBQF2-bo3-qf2-qp first listed.

Quench Detector(s) Trip: 4b-qd1, In the Pink, Quench Detector Re-boot required.

Postmortem Plot: Current does not follow Iref, Iref drop -0.009 seconds before T=zero

5 Minute: Quench Delay File: None indicated.

Beam Loss Monitors (Rads/Hr): Beam Dump is clean, No Beam in the machine.

Main Magnet Power Status: Ramping towards Injection Current, BMD = 179 amps, BMQ = 171 amps

DX Heaters: None fired.

Technical Notes / Sequence of Events: bo3-qf2-ps, Stby-Error, AC Power, Standby, Remote, Error signal, Quench 00:50, We have had two quench link interlocks each time after recovering from the last quench link interlock. We call Don Bruno who indicates that the current regulator card for bo3-qf2 should be replaced. Don has spoken to CAS, and he will take down the link in order to allow the work to proceed. -LH

QLI Recovery TAPE Start: 00:18:05 Link Recovered Time: 00:29:31 Estimated Down Time: 16 minutes

Quench Analysis: bo3-qf2-ps fault.
(Counter = IR)

Friday-December 24, 2004: MS-020, Blue Quench: File# = 1103867483

Permit ID: 4b-time.A Timestamp: 00:51:20 +3035587 Beam Permit Fail Timestamp: 00:51:20 +3035617

QPAControl / Timing Resolver: No QPA faults listed, QP03-R4BBQF2-bo3-qf2-qp first listed.

Quench Detector(s) Trip: All systems running.

5 Minute: Quench Delay File: None indicated.

Beam Loss Monitors (Rads/Hr): Beam Dump is clean, No Beam in the machine.

Main Magnet Power Status: Park Current

DX Heaters: None fired.

Technical Notes / Sequence of Events:
bo3-qf2-ps, Stby-Error, AC Power, Standby, Remote, Error signal, Quench

00:54, I brought down the blue quench link by putting bo3-qf2 into the OFF state at 00:51. It looks like bo3-qf2 brought the link down the last 2 times on an error signal fault. I am asking CAS to swap out the current regulator card first and if that does not work they may have to swap out the whole p.s. -Don Bruno [blue] [ps]

02:14, Swapping out the current regulator card and voltage regulator card did not fix the problem with bo3-qf2-ps. CAS will swap out the p.s. now -Don Bruno [blue] [ps]

03:45, CAS swapped out power supply bo3-qf2-ps and the new one looks like it is working now at 1 amp. I am running Blue Quench Recovery and will bring p.s.'s to park, then I will hand the p.s.'s back to MCR. -Don Bruno [blue] [ps]

04:48, The blue p.s.'s are at Park and I handed them back over to MCR. -Don Bruno [blue] [ps]

QLI Recovery TAPE Start: 03:25:24; paused due to bo3-qf2-ps, Not-Off , Off (second attempt good at 03:43:06)

Link Recovered Time: 04:04:26 Estimated Down Time: 194 minutes

Quench Analysis: bo3-qf2-ps fault.
(Counter = IR)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Machine-Setup for Physics RHIC Run-5, Cu-Cu

Yellow Ring Officially handed over to MCR on December 27, 2004 at 21:15 hours. Start of the Yellow Ring Counters has begun.

December 27, 2004

Technical Notes / Sequence of Events: 21:17 The yellow ring was brought to 100 Amps above operating current. Two high current shut offs were done. The quench detector data looks good for both shut offs. The ring was ramped to top energy using Cu8 at the normal ramp rate. There are no restrictions on ramp rate, the yellow ring can use that same ramp rates as the blue ring. The only thing that is left to do is for Carl to apply his feed forward coefficients to both yellow main power supplies after we take some data tomorrow. This should take 2 hours to do. -ganetis [ps quench]

Tuesday-December 28, 2004: MS-021, Yellow Quench: File# = 1104256772

Permit ID: 12a-ps1.A Timestamp: 12:59:32 +858637 Beam Permit Fail Timestamp: 12:59:32 +858667

QPAControl / Timing Resolver: No QPA faults listed, QP11-R12AD1-y12-dh0-qp first listed.

Quench Detector(s) Trip: All tripped indicating Positive Tq Values.

Postmortem Plot: Supply ramping up, tripping at 33 amps, Iref drops steadily at T -0.01 seconds before zero.

5 Minute: Quench Delay File: None Indicated.

Beam Loss Monitors (Rads/Hr): Hysteresis Loop Performed, no Beam in the machine.

Main Magnet Power Status: Ramping to LastStone, YMD = 1082 amps, YMQ = 1127 amps

DX Heaters: None fired.

Technical Notes / Sequence of Events:

13:10, Yellow quench link trip was caused by y12-dh0-ps going to the off state. D. Bruno is looking at it. -Ganetis [quench]

13:40, Don did not find anything obviously wrong with y12-dh0. -Wolfram, Ubaldo

Tech Note: y12-dh0-ps had tripped to the OFF state during the ramp up. Nothing found as to the cause, reseating of all HKPS connections, removal of HKPS fuses whereas the spring clips were tightened – fuses placed back and vibration test performed once MCR had turned the unit back on. Could not repeat the fault. This supply has been known to trip on this cause and several actions had already taken place to resolve the issue (see power supply logs for details). Monitoring Equipment is now in the works for the next time if and when this supply should trip again. G. Heppner

QLI Recovery TAPE Start: 13:42:10 Link Recovered Time: 13:49:38 Estimated Down Time: 50 minutes

Quench Analysis: y12-dh0-ps, to OFF fault.
(Counter = IR)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Tuesday-December 28, 2004: MS-022, Blue and Yellow Quench: File# = 1104275507

Permit ID: Blue: 10a-ps3.A Timestamp: 18:11:44 +3630762 Beam Permit Fail Timestamp: N/A
Permit ID: Yellow: 8b-ps1 Timestamp: 18:11:44 +3635471 Beam Permit Fail Timestamp: N/A

QPAControl / Timing Resolver: No QPA faults listed
Quench Detector(s) Trip: Running
5 Minute: Quench Delay File: None Indicated.
Main Magnet Power Status: Zero Currents.
DX Heaters: None fired.

Technical Notes / Sequence of Events: Quench Summary page indicates permit,3b-ps1 in the Pink.

18:07 Attempt to run hysteresis failed because prep failed because some FECs are excluded. We're ramping to zero to reset cfe-3b-ps1, then will recover and run a hysteresis ramp from there. -TJS
2004-Dec-28 18:10:20 Ramping the rings to zero to reset cfe-3b-ps1.
2004-Dec-28 18:35:29 Quench links recovered, restoring systems.
2004-Dec-28 18:45:00 Hysteresis complete.

Blue QLI Recovery TAPE Start: 18:16:39 Link Recovered Time: 18:25:26 Down Time for Blue Ring: 15 minutes
Yellow QLI Recovery TAPE Start: 18:25:56 Link Recovered Time: 18:33:28 Down Time for Yellow Ring: 23 minutes

Quench Analysis: cfe-3b-ps1 required an AC Reset.
(Counter = CNTL)

Wednesday-December 29, 2004: MS-023, Blue and Yellow Quench: File# = 1104301856

Permit ID: Blue: 4b-time.A Timestamp: 01:30:56 +897160 Beam Permit Fail Timestamp: N/A
Permit ID: Yellow: 12a-ps1.A Timestamp: 01:30:56 +902459 Beam Permit Fail Timestamp: N/A

QPAControl / Timing Resolver: No QPA faults listed
Quench Detector(s) Trip: Running
5 Minute: Quench Delay File: None Indicated.
Main Magnet Power Status: Zero Currents
DX Heaters: None fired.

Technical Notes / Sequence of Events: Quench Summary page indicates permit,3b-ps1 in the Pink.
01:27wfg 3b-ps1 got error: sever host not reachable, which cannot be reset. It prevents us to make any changes in RHIC. We need to bring the field down to 0 to do AC reset. -VP, NickL,BrianB
01:35 AC reset worked. Bringing up the links. -Nick L. Brian

Blue QLI Recovery TAPE Start: 01:34:19 Link Recovered Time: 01:42:03 Down Time for Blue Ring: 12 minutes
Yellow QLI Recovery TAPE Start: 01:42:32 Link Recovered Time: 01:49:57 Down Time for Yellow Ring: 19 minutes

Quench Analysis: cfe-3b-ps1 required an AC Reset.
(Counter = CNTL)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Scheduled Maintenance: 1100 to 1600

Wednesday-December 29, 2004: MS-024, Yellow Quench: File# = 1104339386

Permit ID: 12a-ps1.A Timestamp: 11:56:24 +2132798 Beam Permit Fail Timestamp: 11:02:00 +3540232

QPAControl / Timing Resolver: No QPA faults listed, QP03-R12ABQF2-yi11-qd2-qp

Quench Detector(s) Trip: Running

Postmortem Plot: N/A

5 Minute: Quench Delay File: None Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Park Current

Technical Notes / Sequence of Events: Link brought down at yi11-qd2-ps for work done on y12-dh0-ps. 1) Wire Harness for J412 replaced, 2) AC Line cord put in place to constantly supply 110vac to the HKPS, 3) Special Digital Isolation Card put in for exterior monitoring purposes. [G. Heppner](#)

QLI Recovery TAPE Start: 13:04:11 Link Recovered Time: 13:13:08 Estimated Down Time: 77 minutes

Quench Analysis: y12-dh0-ps
(Counter = Maintenance)

Wednesday-December 29, 2004: MS-025, Yellow Quench: File# = 1104351806

Permit ID: 4b-time.B Timestamp: 15:23:24 +2829366 Beam Permit Fail Timestamp: 11:02:00

QPAControl / Timing Resolver: Yellow Main Power Supply, YQLI/SW-6(8) YI4 first to indicate

Quench Detector(s) Trip: All tripped indicating positive Tq values.

Postmortem Plot: Power Supplies at Injection Current

5 Minute: Quench Delay File: Running, none Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Injection Current

Technical Notes / Sequence of Events: Carpenters accidentally pushed the Yellow Main Crash Button at 1004B while hanging sound absorption material near the main racks. Recovered Yellow Link and performed one Hysteresis Loop as per Don Bruno. [G. Heppner](#)

QLI Recovery TAPE Start: 15:50:03 Link Recovered Time: 15:58:10 Estimated Down Time: 35 minutes

Quench Analysis: Crash Button, Yellow Main Power Supply 1004B
(Counter = Other)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Scheduled Maintenance 1500 to 1630

Thursday-December 30, 2004: MS-026, Blue and Yellow Quench: File# = 1104438055

| | | |
|----------------------------------|-------------------------------------|--|
| <u>Permit ID: Blue: 2b-ps1</u> | <u>Timestamp: 15:20:52 +3848965</u> | <u>Beam Permit Fail Timestamp: N/A</u> |
| <u>Permit ID: Yellow: 2b-ps1</u> | <u>Timestamp: 15:21:20 +59668</u> | <u>Beam Permit Fail Timestamp: N/A</u> |

Technical Notes / Sequence of Events: 15:23, I brought the blue and yellow links down for A1 to do work on the quench detectors. I brought the links down by putting bi1-qd2-ps and yi2-qd2-ps into the OFF state. -Don Bruno [rhic] [ps]

RHIC ps Maintenance performed today:

1. Replaced fan at 7 Dx magnet tree
2. Swapped DC cables at yo12-qgt-ps. We found that it was reversed according to the drawing, now it matches the drawing.
3. A1 re-booted quench detectors after doing some work on quench detectors.
4. All the sextupoles were re-trained since quench detectors were re-booted.
5. Current Regulator card swapped out for yi10-qf9-ps. -Don Bruno [rhic] [ps]

Blue QLI Recovery TAPE Start: 16:11:25 Link Recovered Time: 16:21:25 Down Time for Blue Ring: 61 minutes

Yellow QLI Recovery TAPE Start: 16:22:00 Link Recovered Time: 16:30:14 Down Time for Yellow Ring: 69 minutes

Quench Analysis: Reset of All Quench Detectors as per George Ganetis Request.
(Counter = Maintenance)

Friday-December 31, 2004: MS-027, Yellow Quench: File# = 1104498820

| | | |
|-----------------------------|------------------------------------|---|
| <u>Permit ID: 10a-ps3.A</u> | <u>Timestamp: 08:13:40 +549341</u> | <u>Beam Permit Fail Timestamp: 08:13:40 +549370</u> |
|-----------------------------|------------------------------------|---|

QPAControl / Timing Resolver: No Faults Indicated.

Quench Detector(s) Trip: Running

Postmortem Plot: Normal conditions during a ramp.

5 Minute: Quench Delay File: Running, none Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Ramping from Park to FirstStone. Tripping at low energy.

Technical Notes / Sequence of Events:

Yellow quench link trip was caused by bad connection on a quench link interlock cable between the A1 QPAIC and A2 QPAIC in service bldg. 1010A. -Ganetis [quench]

Note: Refer to MS-033 for final cause.

QLI Recovery TAPE Start: 08:22:55 Link Recovered Time: 08:34:03 Estimated Down Time: 21minutes

Quench Analysis: Refer to MS-033
(Counter = Other)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Friday-December 31, 2004: MS-028, Yellow Quench: File# = 1104500691

Permit ID: 10a-ps3.A Timestamp: 08:44:48 +3605162 Beam Permit Fail Timestamp: 08:44:48 +3605191
QPAControl / Timing Resolver: No Faults Indicated
Quench Detector(s) Trip: 10a-qd2; Y9DSD9_5VT Int. 20, Tq= 469
Postmortem Plot: Nothing Unusual.
5 Minute: Quench Delay File: Running, none Indicated.
Beam Loss Monitors (Rads/Hr): No Beam in the machine.
Main Magnet Power Status: Steady at Injection Current.

Technical Notes / Sequence of Events:

09:43, George called. We have double problems here: the first is the cause of the QLI, the second is the QLI diagnostic application. Currently, W. Louie is working on the application problem and George has to sort through all data to find the cause of the QLI. George thinks this would take at least half hour. I asked if it is possible to run blue only. He said it is possible but we will wait for half hour since the permit change is not straightforward. -Haixin
10:01, We think we have a bad connection on a yellow quench link cable at 1010A. Wing Louie is coming in to confirm the problem and fix it. This was the cause of the two earlier yellow quench link trips. -Ganetis [quench]

Note: Refer to MS-033 for final cause.

QLI Recovery TAPE Start: Ref to MS-031 Link Recovered Time: N/A Estimated Down Time: N/A minutes

Quench Analysis: Refer to MS-033
(Counter = Other)

Friday-December 31, 2004: MS-029, Yellow Quench: File# = 1104510543

Permit ID: 2b-ps1 Timestamp: 11:29:00 +3155893 Beam Permit Fail Timestamp: 11:29:00 +3155922
QPAControl / Timing Resolver: QP11-R2BD1-y2-dh0-qp, no faults indicated
Quench Detector(s) Trip: 2b-qd2; Y1DSD9_5VT Int. 5, Tq= 86 from 08:44:52
Postmortem Plot: While Supplies are at zero currents, the wfg's appear to be at Injection Levels.
5 Minute: Quench Delay File: Running, none Indicated.
Beam Loss Monitors (Rads/Hr): No Beam in the machine
Main Magnet Power Status: Supplies at Zero Currents, Iref seen at Injection Level.

Technical Notes / Sequence of Events:

QLI Recovery TAPE Start: Ref to MS-031 Link Recovered Time: N/A Estimated Down Time: N/A minutes

Quench Analysis: wfg Errors
(Counter = Other - Tape)

RHIC Physics fy05 Run
Daily Quench Analysis for the month of December 2004

Friday-December 31, 2004: MS-030, Blue Quench: File# = 1104512471

Permit ID: 10a-ps3.A Timestamp: 12:01:08 +3512738 Beam Permit Fail Timestamp: 12:01:08 +3512767

QPAControl / Timing Resolver: No Faults Indicated

Quench Detector(s) Trip: 10a-qd1; B9DRD0_D0 Int. 1, Tq = 26.

DX Heaters: None fired.

Postmortem Plot: Nothing Unusual.

5 Minute: Quench Delay File: Running, none Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Steady at Injection Current.

Technical Notes / Sequence of Events: Refer to MS-033 for final cause.

QLI Recovery TAPE Start: 12:30:31 Link Recovered Time: 12:38:05 Estimated Down Time: 37 minutes

Quench Analysis: Refer to MS-033

(Counter = Other)

Friday-December 31, 2004: MS-031, Yellow Quench: File# = 1104512837

Permit ID: 10a-ps3.A Timestamp: 12:07:16 +1587674 Beam Permit Fail Timestamp: 12:01:08 +3512767

QPAControl / Timing Resolver: No Faults Indicated

Quench Detector(s) Trip: 10a-qd2; Y9DSD9_5VT Int. 20, Tq= 469

Postmortem Plot: Supplies at zero, nothing seen unusual.

5 Minute: Quench Delay File: Running, none Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Supplies at Zero Currents, Iref seen at Injection Level.

Technical Notes / Sequence of Events: Refer to MS-033 for final cause.

QLI Recovery TAPE Start: 12:14:27 Link Recovered Time: 12:26:32 Estimated Down Time: 210 minutes

Quench Analysis: Refer to MS-033

(Counter = Other)

Friday-December 31, 2004: MS-032, Blue Quench: File# = 1104515078

Permit ID: 10a-ps3.A Timestamp: 12:44:36 +2326211 Beam Permit Fail Timestamp: 12:44:36 +2326240

QPAControl / Timing Resolver: No Faults Indicated

Quench Detector(s) Trip: Running

DX Heaters: None fired.

Postmortem Plot: Nothing Unusual.

5 Minute: Quench Delay File: No Indications

Beam Loss Monitors (Rads/Hr): No Beam in the Machine

Main Magnet Power Status: Park Currents

Technical Notes / Sequence of Events: Refer to MS-033 for final cause.

QLI Recovery TAPE Start: 15:47:36 Link Recovered Time: 15:58:17 Estimated Down Time: 194 minutes

Quench Analysis: Refer to MS-033

(Counter = Other)

RHIC Physics fy05 Run

Daily Quench Analysis for the month of December 2004

Friday-December 31, 2004: MS-033, Yellow Quench: File# = 1104515494

Permit ID: 10a-ps3.A

Timestamp: 12:51:32 +2292063

Beam Permit Fail Timestamp: 12:44:36 +2326240

QPAControl / Timing Resolver: No Faults Indicated

Quench Detector(s) Trip: All tripped indicating positive Tq values.

Postmortem Plot: Nothing Unusual.

5 Minute: Quench Delay File: Running, none Indicated.

Beam Loss Monitors (Rads/Hr): No Beam in the machine.

Main Magnet Power Status: Park Currents

Technical Notes / Sequence of Events: (In Conjunction with another document showing signal paths / Timing Resolvers)
"The trail of finding the bad connector at 1010A Yellow QLI" by Wing Louie.

1. From your document, in page-4, all group-2 signals show "0", except the QLO shows 1553299579. But this time stamp does not match other Yellow signals time stamps, YI5 has 476894263 and YO1 has 476896578.
2. Reasons for group-2 has different time stamp than other groups is either the Timing Resolver (TR) is bad or noise pulse in group-2 triggered the TR.
 - a. Checking the Archived files. Group-2 seems like working properly.
 - b. From the last two archived files, group-2's QLO signal was triggered, but all other signals within the group still remained "0". "0" means the signal did not change state within 4 seconds after the trigger. The trigger signal is the first signal within the same group that changed state.
 - c. Once the TR is triggered, it logged the time stamp and wait for the rearm before it starts the scanning function.
3. The TR has a noise filter of a few microseconds, where as the QPA has noise filter of millisecond. This explains why the TR was triggered but the not the QPA.
4. Your building block diagram shows all the critical TR connections. In page-4 of your report, the noise pulse can happen either at the QLO QPAIC-A2 Y06 (K-LOC J30) or the QLI QPAIC-A1 Y05 (K-LOC J29). The building block diagram shows all details.
5. I brought up the Yellow link, looking at the QPAIC front panel LEDs, and found the QLO LED on the QPAIC-A2 front panel is dimmer than other LEDs. When Fred wiggled the A2 (J30) cable, no effect was observed. But when he wiggled the A1 (J29) cable, I can see the intensity changes. Since we had a lot of problems with K-LOC cables, I asked Fred to change the connector on the cable. (In the process of wiggling cables, the blue link came down. Fred said he was wiggling the A1-J24 cable at that time).
6. After the connector on the cable was changed. The same intensity problem was still there. Therefore, replacing the QPAIC-J29 cable K-LOC connector did not fix the problem.
7. I connected a 5-volt source to QPAIC A1-J30, the intensity changes when the J29 cable was wiggled. But when I connect the 5-volt source to the QPAIC A1 J29 cable, the intensity remained constant regardless what cables we wiggled. (The blue link came down once more, but I was not pulling any cable at that time). Therefore, the problem is the K-LOC J29 or J30 connectors inside the QPAIC-A1. From the Archive files, the A1-J30 worked perfectly. The problem is associated with A1-J29. Fred connected a tee to A1-J29 and monitors with a voltmeter. We observed voltage vary from 2 to 4 volts when the A1-J29 chassis connector was wiggled.
8. We removed the QPAIC-A1 from the rack (after Fred LOTO the Y-Main-Quad). I connected the 5-volt source to J30, verified the problem is still there. After the cover was open, found the wire connected to J29 was covered with shrinkable sleeve. When I gently pulled on the wire, it came off easily. Fred and I both inspected the solder connection and determined the connection was a cold solder joint. Fred re-soldered the connector.
9. With the 5-volt source is connected to A1-J30 and the voltmeter is tied to A1-J29. This time we did not see any intensity changes, and the voltmeter recorded a solid 4-volt signal.
10. We restored the system.

QLI Recovery TAPE Start: 15:35:00

Link Recovered Time: 15:44:08

Estimated Down Time: 173 minutes

Quench Analysis: Bad Solder Connection within QPAIC-A1 Chassis, Bldg. 1010A

Total Down Time for Machine Setup Physics = 451 minutes

(Counter = Other)